because it works

Operation manual

FLUID HEATER

	High-Pressure (HP) Fluid Heater	Low-Pressure (LP) Fluid Heater
1800 / 115V	❍ 0643430 A	–
3500 / 230V	❍ 0614335 ❍ 0631636 ❍ 0639850 ❍ 0650797 ❍ 0656099 ❍ 0657725	❍ 0633599 ❍ 0650081 ❍ 0653207
3500 / 400V	❍ 0648374 ❍ 0648704 ❍ 0657716	❍ 0648375 ❍ 0657494

Serial-No.

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CE Ex

Translation of the original operation manual
MDFE_mAtex_1307_en • jw

Declaration of conformity

according to ATEX-Directive 94/9/EC

The company **WIWA Wilhelm Wagner GmbH & Co. KG**
Gewerbestr. 1-3
35633 Lahnau
Germany

herewith declares
that the equipment types **Fluid Heater WIWA 1000...3780**

with Serial-No. _____
are in conformance with the provisions of the above-mentioned guideline, as well as the following standards: DIN EN 60079-0 : 03.2010
DIN EN 60079-1 : 04.2008

The listed euipment is assigned to Group II, Category 2 G

Marking: II 2G Ex d IIB 165 °C (T3) Gb

Designated agency according to ATEX-Directive 94/9/EC: Bureau Veritas
Consumer Products Service Germany GmbH

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Designated agency for QM: TÜV Rheinland Industrie Service GmbH,
Am Grauen Stein, 51105 Köln
Notified Body 0035

Lahnau, _____
Place, Date

Heidrun Wagner-Turczak
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Content

1 Foreword 5

2 Safety 6

2.1 Explanation of symbols 6
2.2 Safety instructions 8
2.2.1 Operating pressure 8
2.2.2 Power supply 8
2.2.3 Explosion protection 9
2.2.4 Risks caused by electrostatic charging 10
2.2.5 Health risks 10
2.3 Information signs on the unit 11
2.4 Protective devices 12
2.4.1 Temperature Limiter 13
2.4.2 Ground Cable 13
2.5 Operating and maintenance personnel 13
2.5.1 Unit owner's duties 13
2.5.2 Personnel qualification 14
2.5.3 Authorized operating personnel 14
2.5.4 Personal Protective Equipment (PPE) 14
2.6 Notes on warranty 15
2.6.1 Conversions and alterations 15
2.6.2 Spare parts 15
2.6.3 Accessories 15
2.7 Emergency procedures 15
2.7.1 Shutting down 15
2.7.2 Leakages 16
2.7.3 Injuries 16

3 Unit description 17

3.1 Intended use 17
3.1.1 Models 1800 and 3500 HP 17
3.1.2 Model 3500 LP 17
3.2 Description of function 17
3.3 Unit structure 19
3.4 Accessories 20
3.4.1 Temperature Gauge 20
3.4.2 Circulation Valve 20
3.5 Equipment versions 21
3.5.1 Converting an Airless or Air Combi pump to an Airless or Air Combi Hot Spray version 21
3.5.2 Portable Fluid Heater 22
3.5.3 Heating of air motors (de-icing system) by using a Fluid Heater 22
3.5.4 Atomization Air Heating for Air-Combi Hot Spray Units 23

4 Installation and preparation 24

4.1 Safety measures at installation site 24
4.2 Operation manuals of the pump and accessories 25
4.3 Electrical power connection 25
4.4 Mount the Fluid Heater 25

4.5 Ground the unit 25
4.6 Mount the fluid hoses 26
4.7 Mount de-icing assembly 26
5 Start-up and operation 27
5.1 First cleaning 27
5.2 Pressure testing 27
5.3 Unit preparation 27
5.4 Change of material 29
5.5 Shutting down 29
5.6 Waste disposal 30
6 Checks and Maintenance 31
7 Malfunctions and trouble-shooting 33
8 Technical specifications 34
9 Certificate of training and operation 35
10 Appendix 36

1 Foreword

Dear Customer!

We are delighted that you have decided in favour of a unit made by our company.

This operation manual is intended for the operating and maintenance personnel. It contains all the information required to working with this unit.

The owner of the unit must ensure that operators and maintenance personnel always have an operation manual at their disposal in a language that they understand!

Safe and reliable operation of the unit requires further information in addition to this operation manual. You should have read and understood the guidelines and accident prevention regulations that apply in your country.

In Germany the following apply:

- ZH 1/406 “Richtlinien für Flüssigkeitsstrahler” (Guidelines for Liquid Jets), published by the German “Hauptverband der Gewerblichen Berufsgenossenschaften”;
- BGR 500, Chapter 2.29 “Application of Coating Materials”;
- BGR 500, chapter 2.36 “Working with Fluid Spraying Equipment” published by the employers liability insurance association for the gas, remote heating and water management sectors.

We strongly recommend adding all relevant guidelines and accident prevention instructions to this operation manual.

As the Fluid Heater can only be used in connection with spray equipment, the operating manuals for the spray equipment and any accessories used must be observed and followed.

Moreover the manufacturer's instructions and guidelines for coating or feeder materials must be respected at all times.

However, if you have any questions, please do not hesitate to contact us.

Best wishes for good results with your unit from

WIWA Wilhelm Wagner GmbH & Co. KG**.**

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This operation manual only applies in conjunction with the unit card that was given to you with the user manual for your equipment. Please check that the data on the type plate match those on the machine card. Please notify us immediately if there are discrepancies, if the user manual has been incorrectly compiled or if the type plate is missing.

2 Safety

This unit has been designed and manufactured under due consideration of all safety-related aspects. It complies with the current standard of technology and the valid accident prevention instructions. The unit left the factory in perfect condition and guarantees a high level of technical reliability and safety. Nevertheless, there are certain risks that can arise from incorrect operation or misuse:

- to life and limb of the operator or third party,
- to the unit and other material assets of the owner,
- to the efficient working capacity of the unit.

You must refrain from any working methods that could affect the safety of operating personnel and equipment. All the people that are involved in set-up, commissioning, operation, maintenance, repair and servicing of the spray gun must have read and understood the operation manual beforehand, especially the chapter entitled “Safety”.

Your safety is at stake!

We recommend to the owner of this unit to have this confirmed in writing.

2.1 Explanation of symbols

Safety information warns you of potential risks of accidents and tell you the measures that are needed to prevent accidents.

In WIWA operating manuals, safety information is specially highlighted and marked as follows:

DANGER

Indicates danger of accidents; if you ignore the safety information, there is a high risk of severe injury resulting up to and including death!

WARNING

Indicates danger of accidents; if you ignore the safety information, severe injury can result up to and including death!

CAUTION

Indicates danger of accidents; if you ignore the safety information, severe injury can result!

Indicates important information on correct use of the machine. Ignoring it can result in damage to the machine or in its vicinity.

In the safety notes about the risk of accidents, different pictograms are shown after each hazard source - examples:

General accident risk

Risk of explosion from explosive atmosphere

Risk of explosion from explosive substances

Danger of injury due to electric voltage or electrostatic charging

Risk of crushing by moving components

Risk of burning due to hot surfaces

Mandatory safety instructions concern personel protective equipment to be worn in the first instance. They are particularly highlighted and marked as follows:

Wear protective clothing
Highlights the order to wear the prescribed protective clothing to protect against skin injuries caused by spraying material or gases.

Use eye protection
Indicates the requirement to wear protective goggles to protect against eye injuries caused by gases, fumes or dust.

Wear ear defenders
Indicates the requirement to wear ear defenders to prevent your hearing from being damaged by noise.

Use a respiratory protection mask
Highlights the order to use a respiratory protection mask to prevent your respiratory tract from being damaged by gases, fumes or dusts.

Wear protective gloves
Highlights the order to wear protective gloves with lower arm protection to protect against burn injuries caused by heated materials.

Wear protective footwear
Highlights the order to wear protective footwear to prevent injuries to the feet due to objects that may fall, drop or roll around or to hot or caustic liquids.

Indicates references to guidelines, work instructions and operation manuals that contain important information which you must observe at all times.

2.2 Safety instructions

Observe the operating instructions for the spray device!

WIWA® Material flow heaters are only used in conjunction with an appropriate spray device depending on the design (high-pressure or low-pressure) in high- or low-pressure processes and with appropriate spraying accessories.

Inappropriate use can lead to severe injury.

➤ Read the operating manual of the spraying device and its accessories that are in use and follow the instructions the manual contains.

2.2.1 Operating pressure

WARNING

Unit components that do not comply with the maximum permissible operating pressure can burst and cause serious injury.

➤ The specified maximum operating pressures must generally be complied with for all unit components. In case of varying operating pressures, the lowest value is always the one to be taken as the maximum operating pressure for the entire unit.

➤ Material hoses and hose assemblies must comply with the maximum operating pressure, including the required safety factor.

➤ Material hoses must be leak tight and free of kinks, signs of abrasion or bulges.

➤ Hose connections must be tight.

2.2.2 Power supply

WARNING

Use in an area where solvent vapours exist can cause the power cable to become porous or cracked.

➤ Therefore, the power cable must be inspected visually for damage before each operation.

➤ Never make repairs to the power cable. It must be replaced completely by a qualified technician.

WARNING

➤ Before connecting the Fluid Heater to the electrical supply, check to ensure that the point of hook-up is functioning correctly and no faults are present.

➤ In case of power failure, disconnect the power supply to prevent the Fluid Heater from switching on independently.

2.2.3 Explosion protection

WARNING

Units that are designed without explosion protection must not be used in workshops that come under the explosion protection ordinance.

Explosion-protected units meet the explosion protection requirements of Directive 94/9/EC for the explosion group, unit category and temperature class specified on the type plate or in the declaration of conformity.

The operator is responsible for determining the zone allocation according to the Directive of EC 94/9/EC, Appendix II, no. 2.1-2.3 when observing the measures of the responsible inspecting authority. The operator is responsible for checking and ensuring that all technical data and markings according to ATEX correspond with the necessary requirements.

Please note that several unit components have their own type plate with separate marking according to ATEX. In this case the lowest explosion protection of all attached markings applies for the entire unit. Applications where malfunctioning of the unit can lead to danger to personnel must be provided with appropriate safety measures by the operator.

However, if agitators, heaters or other electrically accessories are additionally mounted, one must check the explosion protection. Plugs for heaters, agitators, etc. that do not have explosion protection, may only be plugged in outside of areas that fall under the explosion protection ordinance, even if the accessory equipment as such is explosion protected.

WARNING

Heating up cleaning agents can cause an explosion. This may result in serious injury to persons and damage to property.

- ➤ Pay attention to the flashpoint and the ignition temperature of the cleaning agent.
- ➤ Switch off the material flow heater if you need to perform the following work: Cleaning, pressure testing, decommissioning, maintenance and repair.
- ➤ Flush and clean with solvent only when the heater is cold and disconnected from the power source.
  Never heat solvent in the Fluid Heater!
- ➤ The unit may not be opened when located in and exposed to explosive environments
- ➤ Never spray solvent or material containing solvent into narrow-necked cans or drums with bungholes!
- ➤ Always observe the flashpoint of matierals to be heated. When setting the desired temperature, never exceed the flashpoint temperature of the material that has been stated by the mateirals manufacturer.
- ➤ Smoking, open flames or any other possible ignition sources are not allowed anywhere near the area of operation.

WARNING

Power supply cables which are not Ex-Proof may only be used outside of rooms where explosion-proofing is required, even when the Fluid Heaters themselves are explosion-proof.

➤ Always use an approved power supply cable which corresponds to the applicable Ex-Proof Zone.

2.2.4 Risks caused by electrostatic charging

WARNING

High-pressure systems can charge electrostatically due to the high levels of friction.

➤ Only use conductive material hoses.

All original WIWA® material hoses are conductive and compatible with our equipment.

2.2.5 Health risks

WARNING

Depending on the set temperature, the outside of the heater and the spray gun can get very hot.

➤ Wear suitable protective gloves when spraying too!

➤ The material hoses must not touch the hot surfaces of the material flow heater.

WARNING

Never try to stop a leak at a fitting or high pressure hose using your hand or by wrapping with a rag, etc.

➤ When a leak is detected, the entire system (spray pump, gun, hose, filter, etc.) must be pressure released immediately,

➤ The defective parts must be replaced

➤ Follow the instructions in the Operation manual for the spray equipment and accessories.

CAUTION

Depending on the materials being applied solvent vapours may be generated which could cause damage to health and objects.

➤ Always ensure sufficient aeration and ventilation at the workplace.

➤ Always observe the processing instructions issued by the material manufacturers.

Follow the safety notes and dosing information of the manufacturer and the generally applicable regulations when handling paints, solvents, oils, greases and other chemical substances.

When cleaning your skin, use only appropriate skin protection, skin cleaning and skin care products.

In closed or pressurized systems dangerous chemical reactions may occur if parts made of aluminium or galvanized parts come into contact with 1.1.1 - trichloroethane, methylene chloride or other solvents containing halogenated hydrocarbons (CFC's). If you want to process materials containing the afore mentioned substances, we recommend to consult the material manufacturer to clarify the usability of such substances.

For these materials, we have available a range of rust- and acid-proof units.

2.3 Information signs on the unit

The warning labels and symbols on the Fluid Heater indicate possible sources of danger and must be observed accordingly.

They must not be removed from the unit.

Damaged and illegible information signs must be replaced immediately.

Apart from this you should also read and follow the safety notes in the operation manual.

The following labels are found on the Fluid Heater:

➤ Warning label

Achtung! Wichtige Hinweise!

- Nur im kalten und spannungsfreien Zustand spülen!
- Flammpunkt des Spritzmaterials beachten!

Attention! Important Warning!

- Flush only when the heater is cold and disconnected from the power source!
- Watch the flash point of the spraying materials!

Pic. 2.1

➤ Warning label

Danger!

Disconnect power supply before opening!

Pic. 2.2

➤ Warning label

Danger!
Hot surface!

Pic. 2.3

➤ Nameplate

Please insure that the data on the type plate is in accordance with the information in the operation manual. If there are discrepancies, or if the nameplate is **missing**, please **notify** us immediately.

Pic. 2.4

2.4 Protective devices

If a protective device is not fully operative, or another defect is detected on the machine, interrupt the compressed air supply to the machine and disconnect the heater immediately from the power source.

Follow the instructions in the Operation manual for the spray equipment.

The machine may be restarted only if perfect operation is restored.

All protective devices must be inspected for proper function:

- ➤ Before each commissioning of the machine!
- ➤ Before beginning work with the unit!
- ➤ After each alignment!
- ➤ After cleaning and servicing!
- ➤ After maintenance and repair!

Checklist for inspection of the protective devices on the pressure-released machine:

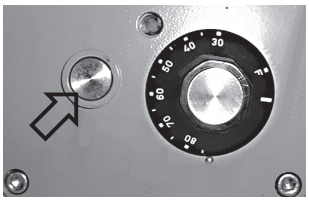
- ☑ Inspect ground cable for damage.
- ☑ Inspect the ground cable connection to the unit and the ground circuit.

All Fluid Heaters are supplied with the following safety devices:

2.4.1 Temperature Limiter

The Temperature Limiter switches the heater off if the maximum allowed temperature is exceeded.

If the Temperature Limiter has switched off the Fluid Heater, it can only be switched on manually by pressing the button Pic. 2.5 until the control lamp lights.



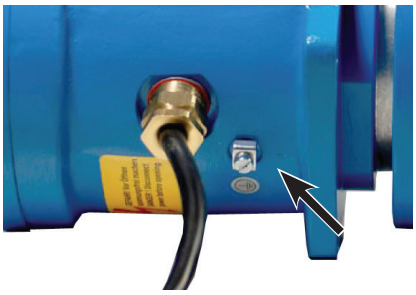
Pic. 2.5

2.4.2 Ground Cable

A separate grounding of the Fluid Heater is required when no electrically-conductive connection to the spray unit exists.

1. Connect the ground cable on the provided grounding screw.

   The grounding screw is located near the power cable connection and is marked with ⏚ (see Pic. 2.6).



Pic. 2.6 Grounding screw

2. Attach the clamp of the grounding cable to an electrically conductive object.

WIWA® Order-Number for the Ground Cable: 0474487

The object to be coated must always be grounded also!

2.5 Operating and maintenance personnel

2.5.1 Unit owner's duties

The unit owner:

- is responsible for the training of the operating and maintenance staff,
- must instruct the operating and maintenance staff in correct handling of the unit as well as in wearing the correct work clothing and personal protective equipment,
- must make the user manual available to the operating and maintenance staff and ensure that it always remains available,
- must ensure that the operating and maintenance staff have read and understood the user manual.

Only then may the unit be brought into service.

2.5.2 Personnel qualification

A differentiation is made between two groups of people in dependence on their qualifications:

- Instructed operators have been verifiably instructed by the unit owner in the activities they are tasked with and the potential risks connected with them in the case of incorrect behaviour.
- Trained personnel have been instructed by the unit builder such that they are capable of carrying out maintenance and repair work on the system and recognising potential risks on their own initiative and of avoiding these risks.

2.5.3 Authorized operating personnel

Activity	Qualification
Setup and operation	Instructed operator
Cleaning	Instructed operator
Servicing	Trained personnel
Repair	Trained personnel

Juveniles under the age of 16 are not allowed to operate this unit.

2.5.4 Personal Protective Equipment (PPE)

Wear protective clothing
Always wear the protective clothing prescribed for your work environment (mining, closed rooms, etc.) and follow the recommendations in the safety data sheet issued by the material manufacturer.

Use eye protection
Indicates the requirement to wear protective goggles to protect against eye injuries caused by material splatter gases, fumes or dust.

Wear ear defenders
Operating personnel should be provided with suitable noise protection equipment. The unit operator is responsible for adhering to the accident prevention regulation “Noise” (BGV B3). For this reason, pay special attention to the conditions at the installation location – the noise burden, for example, will increase if the system is installed in or on hollow bodies.

Wear a respiratory protection mask
We strongly recommend that you wear a respiratory protection mask, even though the paint mist has been minimized in the airless spray painting method given a correct pressure setting and correct working methods.

Wear protective gloves
When applying heated materials you should wear protective gloves with lower arm protection, to protect you against burn injuries.

Wear protective footwear
Wear protective footwear to prevent injuries to the feet due to objects that may fall, drop or roll around and to prevent slipping on a slippery floor.

2.6 Notes on warranty

2.6.1 Conversions and alterations

- Unauthorized conversions or alterations should not be undertaken on safety grounds.
- Protective equipment should not be dismantled, converted or bypassed.
- The unit must only be operated within the specified limiting values and parameters.

2.6.2 Spare parts

- When carrying out maintenance and repair work, you must only use **WIWA** original spare parts.
- Use of spare parts which have not been manufactured or delivered by **WIWA** renders any warranty null and void.

2.6.3 Accessories

- Using original **WIWA** accessories guarantees that they are usable in our units.
- If you use third-party accessories, they must be suitable for the unit – particularly with regard to the operating pressure, the electrical connection data and the connection sizes. **WIWA** accepts no liability for damage or injuries resulting from the use of these parts.

You must observe the safety regulations of the accessories. These safety regulations are found in the separate operating instructions for the accessories.

2.7 Emergency procedures

2.7.1 Shutting down

In an emergency, the unit must be shut down and depressurised immediately.

Please observe, that the associated spraying system must be depressurized.

2.7.2 Leakages

WARNING

In case of leakages material can escape under very high pressure and cause serious bodily injuries and material damage.

- ➤ Immediately shut down the unit and depressurize it.
- ➤ Retighten any screw fittings and replace defective parts (only by trained personnel).
- ➤ Do not try to seal leaks on the connections and high-pressure hoses with the hand or by wrapping fabric around them.
- ➤ Do not repair material hoses!
- ➤ Check hoses and screw fittings for leaks when recommissioning the unit.

2.7.3 Injuries

In the case of injuries by processing materials or solvents, always have available the manufacturer's safety data sheet (address, phone number, material designation and material number of the supplier or manufacturer) for the attending physician.

3 Unit description

3.1 Intended use

The WIWA® Fluid Heater can be used, according to version (HP or LP), in high- or low-pressure applications for heating the applied materials and/or the compressed air supply.

The following types of coating materials may be heated:

- Paint and lacquers
- Protective coatings (oil and grease)
- Stripping agents
- Insulation and fire-protection coatings
- Tar-epoxy and bituminous paints
- Polyurethane
- Water

3.1.1 Models 1800 and 3500 HP

Max. operating pressure: 450 bar / 6525 psi

The WIWA® High-Pressure Fluid Heater is especially suitable for use with Airless spraying systems, Airless plural component units und Air Combi systems.

The advantages of the hot-spray process include higher coating thickness, shorter drying times and top-quality finishes.

Coating materials which are normally difficult or impossible to process due to their consistency become easily sprayable when warmed up using a WIWA® Fluid Heater.

With the addition of a mounting kit, the fluid heater can simultaneously be used for heating of the compressed air supply:

a) as pre-heater for a WIWA® air motor, to prevent icing caused by low outside temperatures and high humidity.

b) for the heating of the atomizing air for Air-Combi systems. Through additional heating of the atomizing air, the quality of the finish is improved further and the drying time is shortened.

3.1.2 Model 3500 LP

Max. operating pressure: 200 bar / 2900 psi

The WIWA® Low-Pressure Fluid Heater is suitable for heating materials to be applied in low-pressure processes.

Futhermore, the WIWA® Low-Pressure Fluid Heater can be used for the supply of heated air to the air motor (de-icing) or for preheating materials being fed to plural component spraying systems.

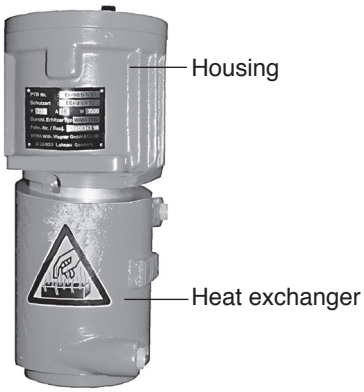
3.2 Description of function

The WIWA® Fluid Heater are heated electrically.

The Fluid Heater Pic. 3.1 consists of two main parts:

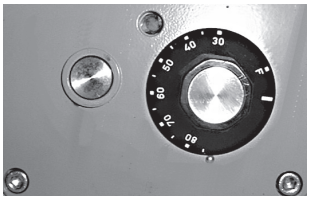
- Housing with electrical switch and heating elements.
- Heat exchanger with material inlet and outlet connections.

Material flows through the heat exchanger and is warmed by the heat produced by electrical heating elements in the the housing.



Pic. 3.1

The desired temperature is freely adjustable using the temperature knob Pic. 3.2 (max. heating temperature 85°C/185°F).

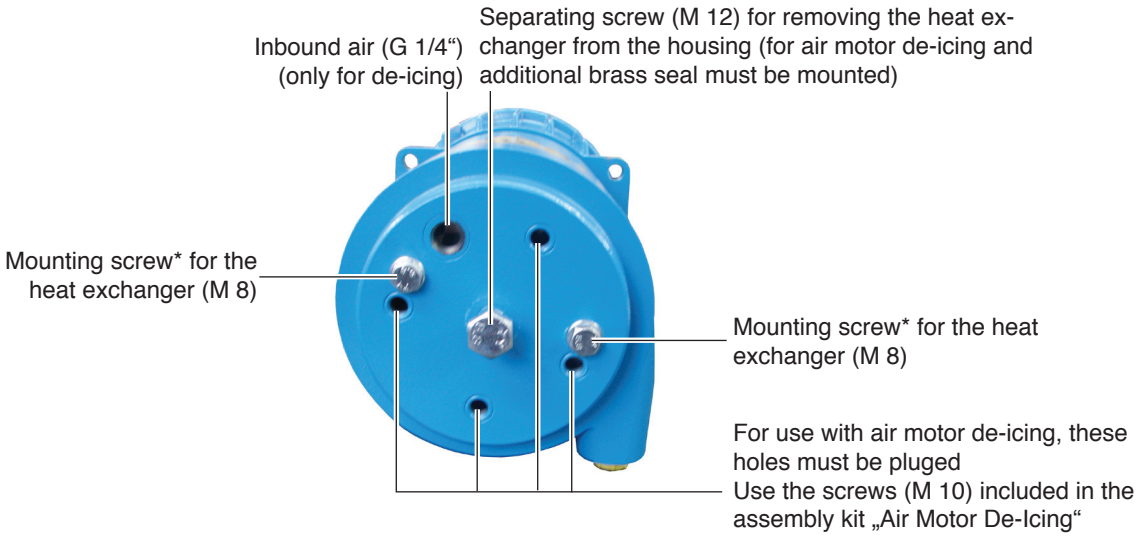


Pic. 3.2

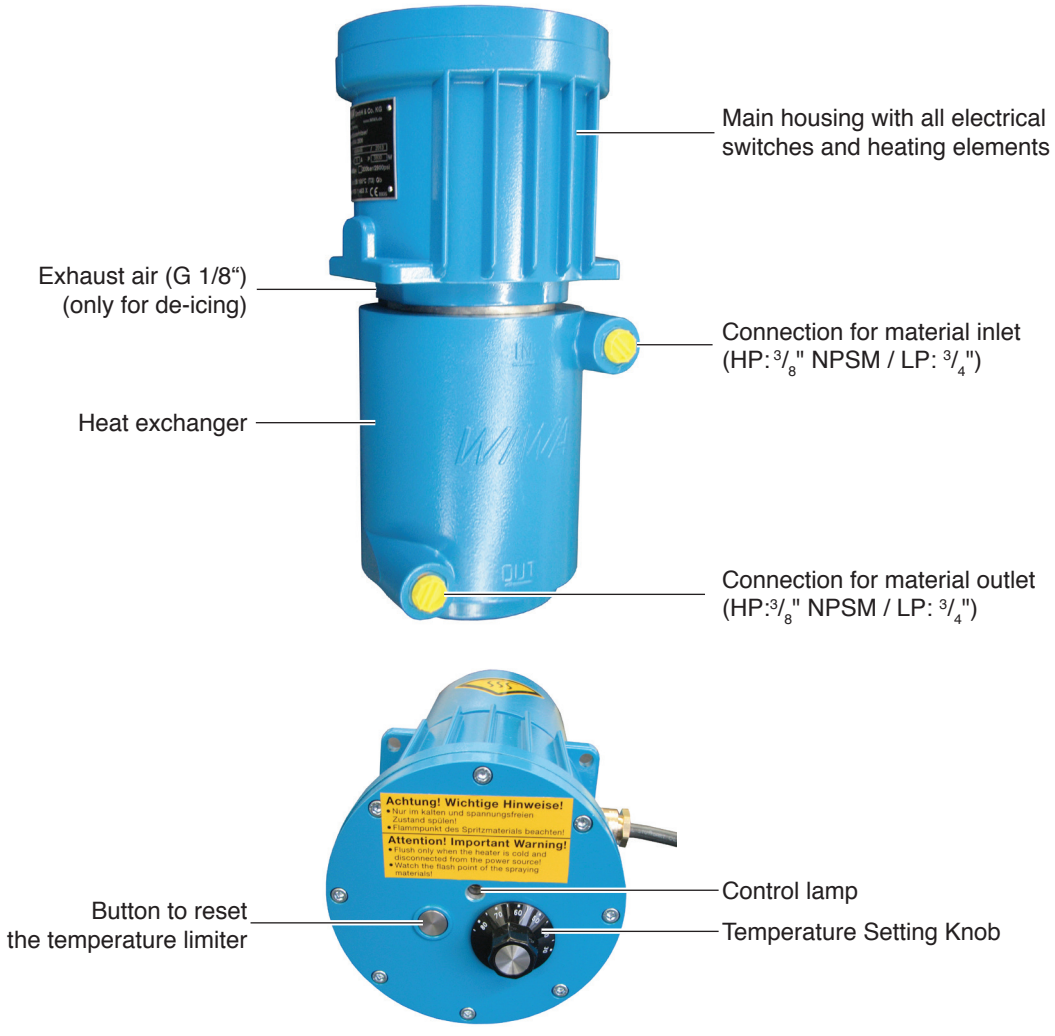
The lower part of the housing is conical. The heat exchanger has a matching conical form. Should a blockage occur in the heat exchanger, it can be removed from the housing by using the separating screw and then exchanged.

For versions with permanent power connection, an explosion proof cable lead in accordance with IP54 is mounted on the housing.

3.3 Unit structure



*) Tightening torque for fastening bolts: Tighten the first bolt to 20 Nm and the second one tight



3.4 Accessories

3.4.1 Temperature Gauge

The Temperature Gauge Pic. 3.3 to read the temperature at the material outlet of the Fluid Heater.

Pic. 3.3
Materialdurchflusserhitzer mit Hochdruckfilter und Temperaturanzeige

3.4.2 Circulation Valve

The return flow control valve Pic. 3.4 is used for circulation systems.

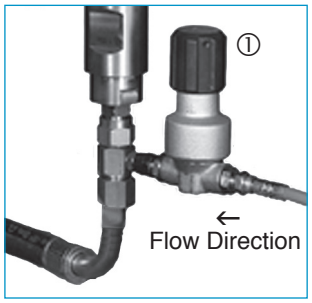
Circulating avoids heat loss of material in hoses or feed lines during pauses in spraying.

If a circulation valve is used, a spray gun with two inbound fluid hoses must be used. These hoses are then mounted to the outbound connection on the Fluid Heater and the inbound connection on the circulation valve Pic. 3.4.

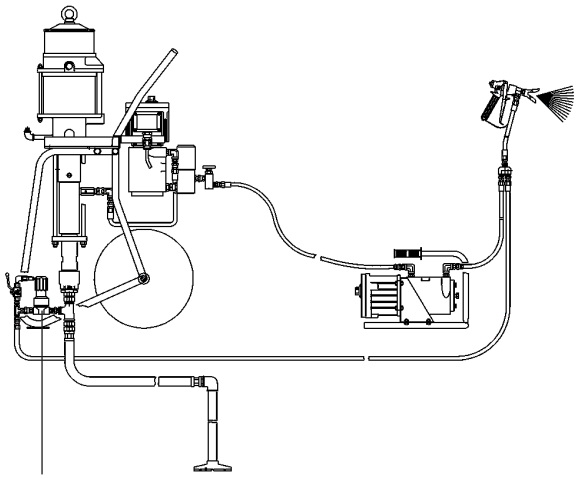
The circulation valve is to be mounted in the direction of material flow between the material pump and suction hose. Please note the arrow on the valve housing.

Depending on the pump model, the circulation valve either comes standard Pic. 3.6 or optionally Pic. 3.5 with a pressure drain valve.

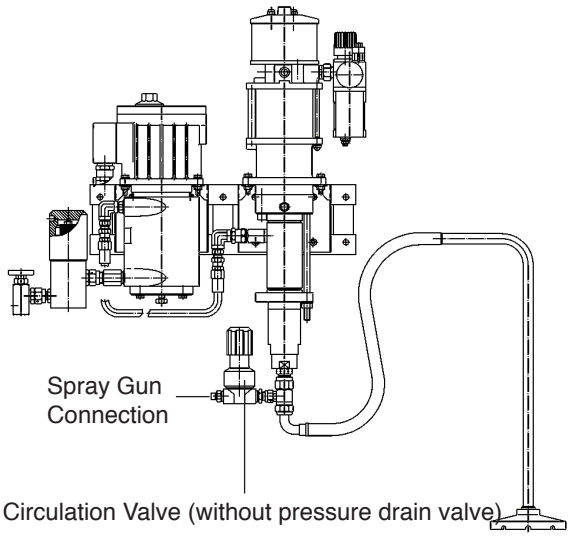
The desired circulation speed can be set using the regulating knob Pic. 3.4, pos.1.



Pic. 3.4



Pic. 3.5



Pic. 3.6

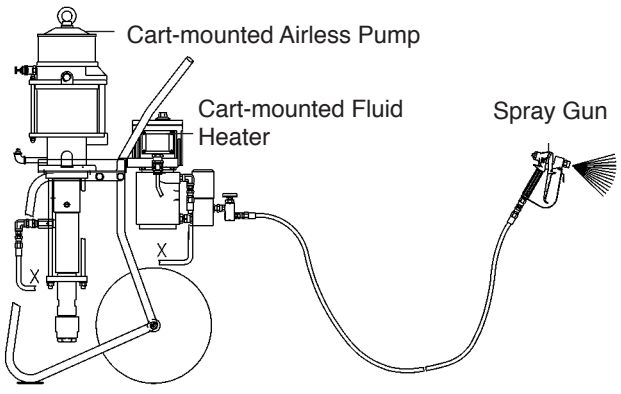
3.5 Equipment versions

3.5.1 Converting an Airless or Air Combi pump to an Airless or Air Combi Hot Spray version

By adding a WIWA® Fluid Heater, shorter curing times, higher film builds and top quality finishes can be achieved.

In addition, heating influences viscosity. High-viscosity materials that would be difficult to spray under normal circumstances can now be handeled more easily.

The required mounting kits are available for all WIWA® Airless and Air-Combi units.



Pic. 3.7

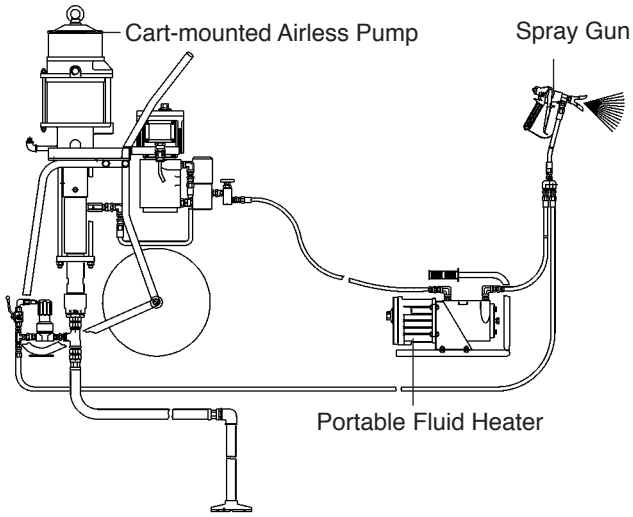
3.5.2 Portable Fluid Heater

This version is used additionally when high temperatures are required at the spray gun/tip.

It is also applicable as an additional heating element when working with long spray hoses, to avoid line heat loss..

The following kit is required:

Portable Frame for Fluid Heaters, Order No. 0632538, as well as a WIWA® Fluid Heater.



Pic. 3.8 Airless pump with frame-mounted Fluid Heater and additional portable Fluid Heater.l

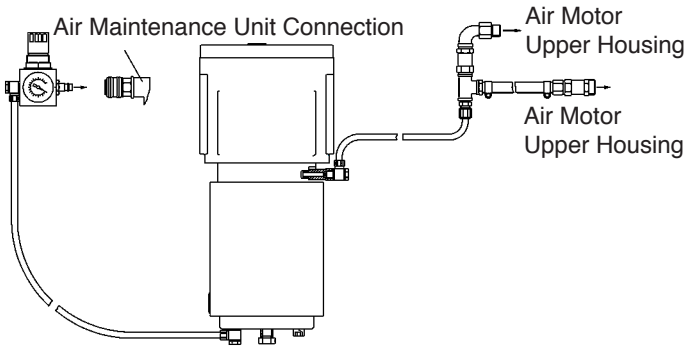
3.5.3 Heating of air motors (de-icing system) by using a Fluid Heater

When operating with adverse ambient temperatures and high humidity, a WIWA® Fluid Heater can be used to provide the air motor with heated air to avoid icing (de-icing system). A portion of the inbound air is tapped from the main line and routed through the Fluid Heater and then back to the air motor.

This pre-heated air is then patched into the air/drain channels in the air motor to reduce the possibility of icing.

The following kit is required:

Air Heating Kit for WIWA® Fluid Heater, Order No. 0632629



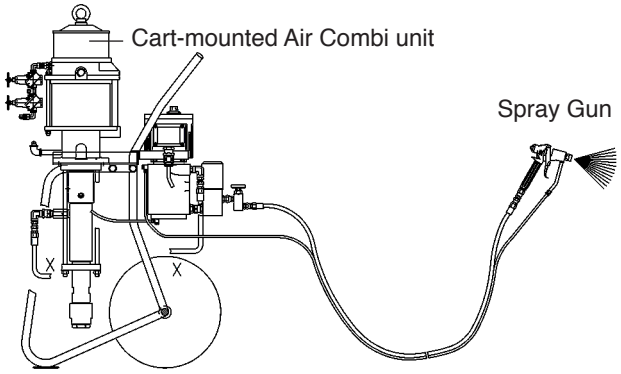
Pic. 3.9

3.5.4 Atomization Air Heating for Air-Combi Hot Spray Units

Designed for reaching an optimal spray pattern, improved paint dispersion and shorter curing times.

To avoid pre-heated material from cooling when coming in contact with the atomizing air, the WIWA® Fluid Heater can also be used to heat the air before it goes into the spray gun.

A portion of the inbound air is tapped from the main line and routed through the Fluid Heater and then out to the gun. To avoid line heat loss, the air and material hoses should be bound together and insulated.



Pic. 3.10

4 Installation and preparation

4.1 Safety measures at installation site

Comply strictly with the current rules for accident prevention.

- For each material sprayed, the corresponding data sheets must be available. The information surrounding the viscosity, working temperature (flashpoint) and the mixing ratio stated by the manufacturer must be observed and followed closely.
- Mount the Fluid Heater securely on the spray unit, a wall bracket or the frame with carrying handle.
  The system must have a fixed position and sufficient space to ensure safe operating. The passage to the safety fittings must not be blocked.
- In case the heater is connected to the power supply in areas with risk of explosion, the connection must be fitted with the appropriate Ex-Proof rating.
- For versions without cable and cable connection, the owner / operator of the equipment has to ensure that approved cable connectors (according to EG-Baumusterprüfbescheinigung „X“, Pt. 17: Special Conditions) are used.
  Cable and cable connections must be designed for 165°C.

WARNING

This work may only be performed by a qualified electrician.
Observe the Ex-Proof zoning of the workplace.

- Before connecting the Fluid Heater to the electrical supply, check to ensure that the point of hook-up is functioning correctly and no faults are present.
- The owner / operator of this equipment is required to ensure that proper protection against lightning strikes is available.
- Keep the working area, especially all gangways and standing areas, clean. Remove spilled paint or solvent immediately.
- Pay attention that no moisture (ex: through rain, high-pressure cleaning, etc.) gets into the Fluid Heater.
  The Fluid Heater must never be immersed in a container of liquid (ex: solvent).
- Ensure there is sufficient ventilation at the workplace to prevent damage to health and property. Observe the manufacturer’s processing instructions at all times.
- Read and follow the instructions in the Operation manual for the spray equipment and accessories.

4.2 Operation manuals of the pump and accessories

WIWA® Fluid Heaters can only be used in conjunction with spraying equipment. Therefore, all instructions covering unit preparation, commissioning, operation and shutting-down must be compared to those covering the spraying equipment itself for compatability.

- ➤ Read and observe the instructions found in the operation manuals for the spraying equipment, the fluid heater and any additional spray accessories.
- ➤ Pay special attention to chapters covering safety in the operation manuals.

4.3 Electrical power connection

The heater is equipped with a permanent power connection cable without plug.

- ➤ Connect the heater to the power supply.

IIn areas with risk of explosion the power connection must be explosion proof.

For versions without cable and cable connection, mount approved cable connectors.

WARNING

This should only be done by trained electrical personnel. Observe the explosion-proof zoning for your workplace.

- ➤ Before connecting the Fluid Heater to the electrical supply, check to ensure that the point of hook-up is functioning correctly and no faults are present.

4.4 Mount the Fluid Heater

Depending on the application, you can mount the material flow heater in different ways (see *chap. 3.5 Equipment versions on page 21*):

- ➤ On a holder onto the spray device or system,
- ➤ On a wall bracket
- ➤ On a carrier base

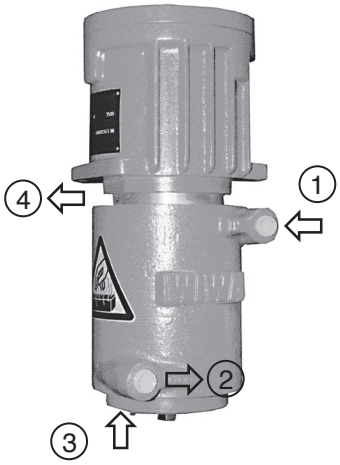
There are four drilled holes on the housing to screw the material heater tight to the holder.

4.5 Ground the unit

A separate grounding of the Fluid Heater is required when no electrically-conductive connection to the spray unit exists (refer *chap. 2.4.2 Ground Cable on page 13*).

4.6 Mount the fluid hoses

- Material heating Pic. 4.11, pos. 1 + 2):
  Remove the yellow caps from the heat exchanger's material inlet and outlet.
- Use a male adaptor to mount the fluid hoses to the Fluid Heater.
  The connections must be sealed using either teflon tape or medium-strength thread sealant (i.e. Loctite®).
- Approximately 80 Nm (59 ft.lb.) torque must be applied.
- Further part numbers for addtional connections can be obtained by contacting WIWA® Customer Service.



Pic. 4.1

Pos.	Description
1	Material inlet (IN)
2	Material outlet (OUT)
3	Air inlet
4	Air outlet

4.7 Mount de-icing assembly

(for 300 and 333 air motors) and the mounting kit (for 200 and 230 air motors)

- De-Icing Pic. 4.1, pos. 3 + 4). Mount the kit to the Fluid Heater.
- For the inbound air connection, an elbow fitting is mounted to the bottom of the unit.
- Furthermore, a brass washer must be fitted under the separating screw. It must be removed again before using the screw to separate the heater housings.
- Screw an adaptor into the outbound air connection on the Fluid Heater. Connect a compressed air line between the upper housing of the air motor and the Fluid Heater.
- Further part numbers for addtional connections can be obtained by contacting WIWA® Customer Service.

5 Start-up and operation

5.1 First cleaning

This WIWA® Fluid Heater was function tested at WIWA® factory using a test-medium.

To ensure that no test medium is left in the pump, the entire system should first be flushed using the solvent recommended by the manufacturer of the coating to be used.

- Disconnect the heater from the power source.
- Now complete all steps covering the initial flushing found in the spraying equipment's Operation manual.

mind. 1 minute

max. 5 minutes

approx. 8-25l
(2-6.5 gal.)

For best results, we recommend flushing the system for approximately one minute. To avoid any danger of explosion, do not allow the solvent to circulate for more than 5 minutes and ensure that the amount of available solvent corresponds to the size of the pump used. Depending on the pump, at least 8 to 25 liters (2 to 6.5 gallons) of solvent are necessary.

5.2 Pressure testing

The maximum operating pressure of the WIWA® Fluid Heater must be equal to or greater than the max. operating pressure of the spraying equipment and any accessories.

The lowest value is to be taken for the complete system.

- Disconnect the heater from the power source.
- Ensure that the WIWA® Fluid Heater has been connected correctly according to the instructions in *chap. 3.3 Unit structure on page 19* and that all fittings are tightened properly.
- Now complete all steps found in the spray equipment's Operation manual covering pressure testing of the system.

5.3 Unit preparation

- Always remember that the WIWA® Fluid Heater may only be flushed when cold an disconnected from the electrical power supply.
- Always observe the working temperature given by the manufacturer of the coating to be heated.
- Check to ensure that accessories (i.e.temperature gauges, back pressure valves) are connected correctly.
- Check to ensure that the pressure ratings of all system components and accessorires correspond to the maximum operating pressure of the WIWA® Fluid Heater.
- Check for the proper ground of:
  - spray pump
  - Fluid Heater
  - accessories
  - object to be coated
- Observe all instructions found in the Operation manual for the spray pump and all accessories.
- When starting the unit and after any repairs, maintenance or cleaning

have been performed, make an optical check of the equipment for any signs of leaks or other defects.

3. Prepare paint spray equipment
Follow the instructions for preparing the system for spraying found in the Operation manual for the equipment.

4. Flush
Due to the possibility that solvent or solvent fumes can still be found within the Fluid Heater and/or spray system, the coating must first be sprayed cold for approx. one to two minutes back into the material feed container.

5. Power supply connection
Connect the Fluid Heater power supply cable to a corresponding electrical connection.

The Fluid Heater must be rated for the available power supply (voltage, amperage, wattage).

WARNING

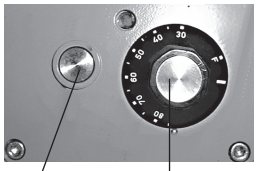
If the WIWA® Fluid Heater is to be used in an area that falls under explosion-proof regulations, ensure that an approved electrical power connection is used.

6. Setting the temperature

Set the desired temperature on the temperature knob (see Pic. 5.1).

The control lamp remains lit while the Fluid Heater is heating. Once the set temperature is reached, the lamp goes out. If the heater begins heating again, the lamp will turn on again.

If the ambient temperature is under 10°C (50°F), the reset button (see Pic. 5.1) must be pressed until the control lamp turns on.



Pic. 5.1

If the maximum allowable temperature is surpassed, a temperature limiter will turn off the Fluid Heater.

To turn the Fluid Heater back on, press the reset button (see Pic. 5.1) until the control lamp goes on again.

7. Operation

WARNING

Never place hands or fingers in or near the spray jet.

The spray system and Fluid Heater are now ready for operation.

- You can now commence with coating the desired object.
- Pay close attention to the instructions found in the operation manual for the spraying equipment.
- If using a Hot Spray system without circulation, cold material is still located in the hoses.
  It is recommendable to pump the material back into its container until heated material exits the spray gun.
- When using two-component materials, the potlife must be observed.

5.4 Change of material

The entire system has to be flushed thoroughly to avoid any possible chemical reaction with the new coatings material.

1. Shutting down
   Follow all the instructions found in *chap. 5.5 Shutting down on page 29*.

2. Shutting down the equipment
   After disconnecting the heater from the electrical power supply, perform all steps covering changing materials and/or shutting down as found in the Operation manual for the spray pump/system.

3. Flush
   Flush the complete system:
   - **when the unit is cold**
   - **disconnected from the electrical power supply**

   Use the solvent that is recommended by the coatings manufacturer.

approx.
2 minutes

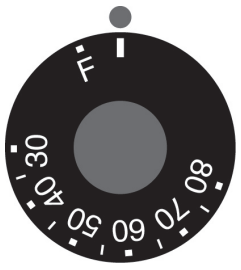
Follow the instructions found in the operation manual of your spraying equipment covering changing materials and/or starting up the unit.

4. Restarting the unit
   Follow the instructions found in the Operation manual for the spraying equipment being used.

   Complete the instructions found in see chap. „5 Start-up and operation“, P. 27, Step 4-6.

5.5 Shutting down

1. Turn off the Fluid Heater
   - Turn off the Fluid Heater 10 minutes before work is completed.
   - To do this, turn the temperature knob to the position „I“ Pic. 6.1.
   - This will enable the operator to use the residual heat up until the end of work while shortening the cooling time until the unit can be flushed.



Pic. 6.1

2. Disconnect from electrical power supply
   Disconnect the heater from the electrical power supply.

3. Flush
   Avoid damage to the unit and the entire system by thoroughly flushing after every shutdown.

Follow additionally the instructions located in the corresponding Operation manual for the spray equipment being used.

According to the rules for the prevention of accidents „Working with liquid jet systems“ BGR 500, Kap. 2.36 the equipment must be checked and overhauled at regular intervals by a specialist (WIWA® Service).

5.6 Waste disposal

At the end of use, you must shut down and dismantle the unit and dispose of it in accordance with legal regulations.

- ➤ Clean the unit thoroughly of all material residues.
- ➤ Dismantle the unit and separate all materials – dispose of metal together with scrap metal; plastic parts can be disposed of as domestic waste.
- ➤ Rests of spraying material, cleaning agent, oils, greases and other chemical substances must be collected in accordance with statutory provisions concerning recycling and waste disposal. The official local waste water laws are valid.

6 Checks and Maintenance

WARNING

If maintenance and repair work is carried out by persons who have not been trained for this work you endanger yourself, other persons and impair the safety and reliability of the unit.

➤ Maintenance and repair work on electrical components must only be carried out by trained electricians – any other maintenance and repair work must be performed by **WIWA** customer service or by specially trained personnel.

Before maintenance and repair work:

1. Cut off the compressed air supply of the entire system.
2. Disconnect the power supply.
3. Depressurize the unit completely.

Read and follow the operation manual for the spray equipment and accessories.

WARNING

Despite releasing the pressure, material congestion or agglomeration of material may mean that there are residual pressures still present. These may suddenly release during disassembly work and can result in serious injuries.

➤ You must be particularly careful during disassembly work!

➤ When disconnecting material hoses you should cover the screw fitting with a cloth to catch any escaping material sprays.

Residual material left in the Fluid Heater can harden and lead to damage of the unit.

➤ The heater must be completely flushed with an appropriate solvent within the potlife given by the material manufacturer, but only when the heater is cold.
Please observe that the potlife of plural component materials is shortend considerably by heating.

The equipment must be checked:

➤ before the first start-up,

➤ after changes and repairs of equipment parts having an effect on safety,

➤ after an interruption of operation of more than 6 months,

➤ however at least every 12 months.

For equipment, which has been taken out of operation, the check can be postponed up to the next start-up.

The results of the checks must be recorded in writing and kept until the next check. The checking certificate or a copy of it must be available at the place

where the equipment is used.

Maintenance instructions for the spray equipment and accessories can be found in the corresponding Operation manual.

7 Malfunctions and trouble-shooting

Fault	Possible Cause	Solution
Material in the heater does not become warm at all	➤ No electricity	➤ A: Check that electricity is available
		➤ B: Check the power connection and power supply cable and replace if necessary. **The above solutions (Point A and B) may only be performed by qualified electrical personnel**
	➤ The temperature limiter has shut off the fluid heater	➤ C: Press the reset button until the control lamp lights.
Material heats but does not reach the desired temperature	➤ Heating cartridges are defect	➤ Contact Customer Service
	➤ Temperature limiter is defect	➤ Contact Customer Service
	➤ Temperature is set incorrectly	➤ Reset the temperature using the temperature knob
	➤ The amount of material passing throught the heater is too large	➤ Lower material flow (smaller tip size) ➤ Add a second Fluid Heater in series to the system
Male adaptors or fluid hoses are leaking	➤ Male adaptors and/ or fluid hoses are not tightened correctly or damaged	➤ Re-tighten the male adaptors and/or fluid hoses or replace as necessary
Material does not flow	➤ Heat exchanger is clogged	➤ If the material in the heater is not completely cured, it may be possible to remove it by flushing under high pressure: HP max. 450 bar (6525 psi) / LP max. 200 bar (2900 psi). ➤ Due to the danger of explosion, the Fluid Heater may only be flushed when completely cold. ➤ Thoroughly flush the heat exchanger or replace if necessary. ➤ If the material is fully cured (especially with two-component materials), the heat exchanger must be replaced. ➤ The heat exchanger may only ➤ be replaced when the Fluid Heater is cold and disconnected from the electrical power supply. ➤ To remove, loosen the two mounting screws and screw in the separating screw until the heat exchanger has separated from main housing. ➤ Before mounting, the cone-shaped surface inside the heat exchanger must be coated completely with copper paste (WIWA® Order No. 0000233).

8 Technical specifications

High-Pressure (HP) Fluid Heater										
Order No.	0631636	0643430A	0656099	0614335	0650797	0639850	0657725	0648374	0648704	0657716
Max. Voltage (± 10 %) (± 10 %) (V)	230	115	230	230		3 x 230	3 x 230	400		
Max. Amperage (Ampere)	9	16	11	16		9	9	6		
Max. Wattage (kW)	2,0	1,8	2,5	3,5		3,5	3,5	3,8		
Max. Temperature* (°C / °F)	60 / 140	85 / 185								
Max. Operating Pressure (bar / psi)	450 / 6525									
Temp. Class (°C / °F)	165 (T3) / 329									
Connection Threads	$^{3}/_{8}$ NPSM inner thread									
Dimensions (L x W x H) (mm / in.)	405 x 220 x 180 / approx. 16 x 9 x 7									
Weight (kg / lbs.)	17,6 / 38.8									
*with 1.8 kW one liter of water can be heated to 25°C (77°F) in one minute. *with 2.0 kW one liter of water can be heated to 28°C (82°F) in one minute. *with 3.5 kW one liter of water can be heated to 50°C (122°F) in one minute.										

Low-Pressure (LP) Fluid Heater					
Order No.	0633599	0653207	0650081	0648375	0657494
Max. Voltage (± 10%) (± 10%) (V)	230		3x 230	400	
Max. Amperage (Ampere)	16		9	6	
Max. Wattage (kW)	3,5		3,5	3,8	
Max. Temperature* (°C / °F)	85 / 185				
Max. Operating Pressure (bar/psi)	200 / 2900				
Temp. Class (°C / °F)	165 (T3)) / 329				
Connection Threads	G $^{3}/_{4}$“ inner thread				
Dimensions (LxWxH) (mm / in.)	405 x 220 x 180 / (approx. 16 x 9 x 7)				
Weight (kg / lbs.)	17,6 / 38.8				

9 Certificate of training and operation

This certificate follows the EC-Directive for working utensils 85/655/EEC, section II article 7.

The owner of the device specified below has instructed the operating personnel.

Manufacture	
Type designation	
Year of construction	
Serial-number	

The instruction was conducted by the representative of the owner:

Foreman or responsible superior, name, department	

The instructed person has read and understood the user manual for the equipment listed above, especially the chapter about safety, and declares that he is able to operate the unit in a safe way.

Personnel for:	**Date, name**
Operation	
Repair and maintenance	
Electrics / electronics	

10 Appendix

BUREAU VERITAS

(1) EG – Baumusterprüfbescheinigung

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen – **Richtlinie 94/9/EG**

(3) EG-Baumusterprüfbescheinigungsnummer

EPS 12 ATEX 1 453 X

(4)	Gerät:	Materialdurchflusserhitzer WIWA 1000 ...3780
(5)	Hersteller:	WIWA Wilhelm Wagner GmbH & Co.KG
(6)	Anschrift:	Gewerbestrasse 1-3 35633 Lahnau

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Baumusterprüfbescheinigung festgelegt.

(8) Die Bureau Veritas Consumer Products Services Germany GmbH bescheinigt als Benannte Stelle Nr. 2004 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaft vom 23. März 1994 (94/9/EG) die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie. Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht 12TH0308 festgelegt.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:

EN 60079-0:2009 **EN 60079-1:2007**

(10) Falls das Zeichen „X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf Konzeption und Bau des festgelegten Gerätes gemäß Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das in Verkehrbringen dieses Gerätes.

(12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:

II 2G Ex d IIB 165°C (T3) Gb

ZERTIFIZIERUNGSSTELLE BUREAU VERITAS 1828 Veritas CPS Germany GmbH

Zertifizierungsstelle Explosionsschutz

Türkheim, 31. Juli 2012

A. Hänchen

Seite 1 / 2

Bescheinigungen ohne Unterschrift haben keine Gültigkeit. Diese Bescheinigung darf nur unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung von Bureau Veritas Consumer Products Services Germany GmbH. Diese Bescheinigung wird intern unter folgender Nummer verwaltet: 12-154

BUREAU VERITAS

(13) **Anlage**

(14) **EG-Baumusterprüfbescheinigung EPS 12 ATEX 1 453 X**

(15) Beschreibung des Gerätes:

Materialdurchflusserhitzer Typ WIWA 1000 W bis 3780 W dient dem erhitzen flüssiger Materialien, die sich bei normaler Temperatur nicht verspritzen lassen. Das Hauptteil (druckfestes Gehäuse) beinhaltet alle elektrischen Schalt und Heizelemente. Auf das Hauptteil wird ein Wärmetauscher aufgesetzt. Die maximale Oberflächen Temperatur wird durch einen Sicherheitstemperaturbegrenzer überwacht. Max. Oberflächentemperatur: 165°C.

Elektrische Daten:

115 V 16 A 1800W 50/60 Hz
230 V 16 A 3500W 50/60 Hz
400 V 9 A 3500 W 50/60 Hz
400 V 10 A 3780 W 50/60 Hz

(16) Prüfbericht: 12TH0308

(17) Besondere Bedingungen:

Wird der Anschluss innerhalb des explosionsgefährdeten Bereichs hergestellt so muss dieser entsprechend explosionsgeschützt ausgeführt werden. Kabel und Kabeleinführungen müssen entsprechend zugelassen und temperaturbeständig sein. Nichtbenutzte Einführungen müssen verschlossen werden.

Eine Reparatur an den zünddurchschlagsicheren Spalten darf nur entsprechend den konstruktiven Vorgaben des Herstellers erfolgen. Die Reparatur entsprechend den Werten der Tabelle 1 bzw. 2 der EN 60079-1 ist nicht zulässig.

(18) Grundlegende Sicherheits- und Gesundheitsanforderungen:

Durch Normen abgedeckt.

Zertifizierungsstelle Explosionsschutz

A. Hänchen

Türkheim, 31. Juli 2012

Seite 2 / 2

Bescheinigungen ohne Unterschrift haben keine Gültigkeit. Diese Bescheinigung darf nur unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung von Bureau Veritas Consumer Products Services Germany GmbH. Diese Bescheinigung wird intern unter folgender Nummer verwaltet: 12-154

because it works

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